

ANNUAL REPORT 1964

SIMCOE

***water pollution
control plant***

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SEP 13 1965

ONTARIO WATER
RESOURCES COMMISSION

DIVISION OF PLANT OPERATIONS

Ontario Water Resources Commission

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ONTARIO WATER RESOURCES COMMISSION
OFFICE OF THE GENERAL MANAGER

Members of the Simcoe Local Advisory Committee,
Town of Simcoe.

Gentlemen:

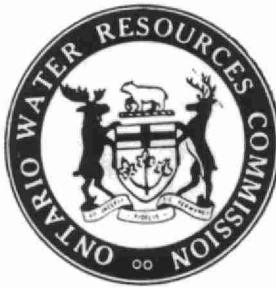
We are pleased to provide you with the 1964 Operating Report for the Simcoe Water Pollution Control Plant, OWRC Project No. 62-S-120.

By continuing the mutual cooperation which has existed in the past, we can look forward to greater progress in the field of water pollution control.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", is written over the typed name.

D. S. Caverly,
General Manager



General Manager,
Ontario Water Resources Commission.

Dear Sir:

It is with pleasure that I present to you the Annual Report of the operation of the Simcoe Water Pollution Control Plant, OWRC Project No. 62-S-120 for 1964.

This report presents design data, outlines operating problems encountered and summarizes in tables, charts and graphs all significant flow and cost data.

Yours very truly,

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

This report describes the operation of this project for the year 1964. It includes a detailed description of the project, summary of operation, graphs and charts showing quality and quantity information, and project cost data.

This information will be of value to the municipality in assessing the adequacy of the works in meeting existing requirements and in projecting its capability to meet future expected demands. The cost information will be of particular interest to those concerned with developing and maintaining revenue structures.

The preparation of this report has been a cooperative effort of several groups within the Division of Plant Operations. These include the Statistical Section, Brochures Officer and the Regional Supervisor. However, the primary responsibility for the content has been with the Regional Operations Engineer. He will be pleased to discuss all aspects of this report with the municipality.

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

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SIMCOE
water pollution control plant

operated for

THE TOWN OF SIMCOE

by the

ONTARIO WATER RESOURCES COMMISSION

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W. S. MacDonnell

DIVISION OF PLANT OPERATIONS

DIRECTOR: B. C. Palmer

Assistant Director: C. W. Perry

Regional Supervisor: A. Beattie

Operations Engineer: P. J. Osmond

801 Bay Street

Toronto 5

'64 REVIEW

This report gives in detail, significant data on the operation of the various treatment units at the Simcoe Water Pollution Control Plant in 1964.

The operating cost of \$69.06 per million gallons of sewage treated is normal for a plant of this size, however, attempts to lower this cost, yet still maintain efficient treatment and management are continually being made.

The average daily flow of 1.326 MG representing a load factor of 0.66, is expected to increase slightly in 1965.

The raw sewage organic loading influent to the plant was 41% stronger than the design loading with respect to BOD whereas the SS was 0.4% weaker than the design loading. Generally the raw sewage received at this plant is stronger than the average of that received at other OWRC plants, however, no adverse affects, apart from the odd odour problem, are experienced. The quality of the effluent was satisfactory during 1964, however attempts to improve the effluent to an excellent rating are being made.

OWRC head office technicians spent approximately 140 man hours at the plants, inspecting and reporting on the mechanical and electrical maintenance being carried out by the plant staff. It was found that the maintenance was generally of a high calibre.

The plant staff have implemented many small improvements during the year which have contributed markedly to the operation of a clean, attractive and efficient plant for the Town of Simcoe.

Very few visitors toured the facilities in 1964 and an attempt to improve this situation will be made in 1965.

GLOSSARY

BOD	biochemical oxygen demand (a measure of organic content)
cfm	cubic feet per minute
comminution	shredding of solids into small fragments
DWF	dry weather flow
effluent	outflow
flocculation	bringing very small particles together to form a larger mass (the floc) before settling
fps	feet per second
gpcd	gallons per capita per day
gpm	gallons per minute
grit	sand, dust, stones, cinders and other heavy inorganic material
influent	inflow
lin. ft.	lineal feet
mgd	million gallons per day
mlss	mixed liquor suspended solids
ppm	parts per million
ss	suspended solids
TDH	total dynamic head (usually refers to pressure on a pump when it is in operation)

HISTORY

1959 - 1964

INCEPTION

In 1959, the Town of Simcoe asked the Ontario Water Resources Commission to make a survey of the Town's water pollution control facilities. In January, 1962, the Town acting on the recommendations of its consultants, Proctor and Redfern, Toronto, decided to proceed with enlargements of sewage treatment and collection facilities, and requested that the enlarged facilities be undertaken as a Commission project.

APPROVAL

Tentative Ontario Municipal Board approval was granted for the complete project on June 25, 1962. Final O.M.B. approval for contract No. 1 (enlarged treatment facilities) was granted on September 18, 1962. Final approval for contract No. 2 (enlarged collection facilities) was received on November 23, 1962.

CONSTRUCTION

Work on Contract No. 1, by the Frid Construction Company Limited, Hamilton, Ontario, began in October, 1962, and was completed in August, 1963. The Division of Plant Operations assumed responsibility for the project, including the facilities existing prior to construction.

Johnson Brothers Construction, Brantford, Ontario, commenced work on Contract No. 2 in March, 1963, and completed the job in September, 1963.

TOTAL COST

\$693,000.00.



E. PERCIVAL
CHIEF OPERATOR

Project Staff

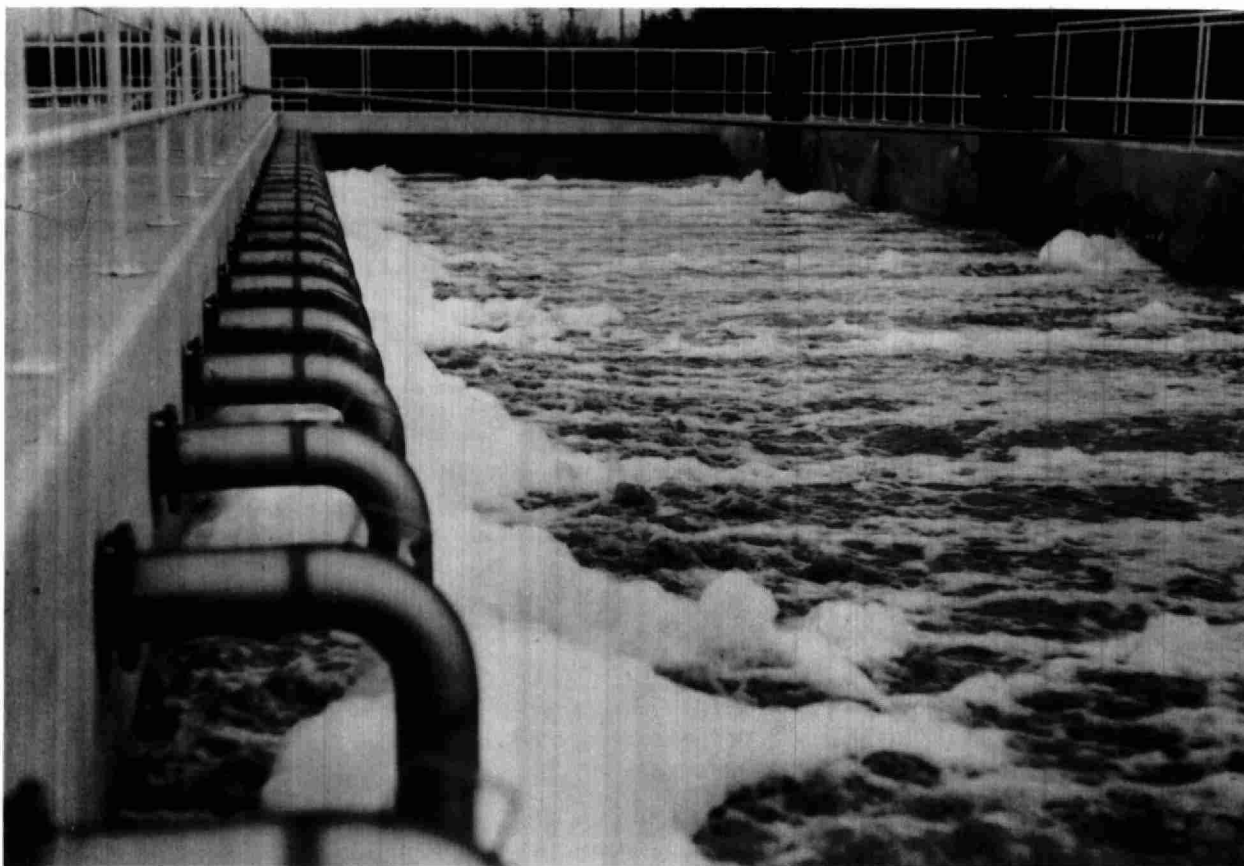
Operators: J. Juliff
W. Montrose

COMMENTS

The permanent staff complement at this plant totals three. A fourth man, a casual labourer, is used during heavy work load periods. The staff provides eight hour supervision of the project on weekdays and partial coverage on weekends.

The Chief Operator, Mr. Percival, has completed a series of three courses, sponsored by the Ontario Water Resources Commission, for qualification as a water pollution control plant operator.

Mr. Percival attended a Chief Operators' Conference, again sponsored by the Ontario Water Resources Commission, in Toronto during March, 1964.



SECTION OF AERATION TANK

Description of Project

GENERAL

This project is composed essentially of two separate activated sludge treatment plants which share common raw sewage pumping, influent works, raw sludge pumping, digestion and chlorination facilities. One plant, of 0.6 mgd capacity, was put into operation in 1956; and the second plant, of 1.4 mgd capacity, was placed in operation in August 1963.

INFLUENT WORKS

Flow from the Town enters the raw sewage pumping station through a 36 inch diameter influent sewer. The sewage is lifted by one of four raw sewage pumps to the elevated influent works where it

is measured in a Parshall flume. The grit is settled out in the detritor and large objects in the sewage are macerated by a barminutor. The flow at this point is then split, the larger portion being directed to the new facilities (plant No. 2) and the smaller amount to the old plant, (plant No. 1). The influent works is also equipped with a bypass chamber. The bypass facility for the complete plant is located at a manhole upstream from the sewage pumping station.

PRIMARY SEDIMENTATION

From the influent works, sewage flows to three primary tanks where approximately 50% of the suspended solids in the sewage is settled out.

Bottom scrapers direct the settled solids, (sludge) to a sump from which they are pumped to the primary digester. Surface skimmers remove floating scum and grease and deposit this material in scum pits, (from which it is pumped to the primary digester. The effluent from these tanks then flows to the aeration sections.

AERATION

The partially settled sewage from the primary tanks flows into single pass aeration tanks where it is mixed with activated sludge being returned from the final tanks. The mixture is retained and aerated for approximately seven hours and then flows to the final tanks. Air for the tanks in the case of plant No. 1 is supplied by two rotary displacement blowers, while air for plant No. 2 employs the 'Inka' system of aeration and was the first plant financed by the OWRC to do so.

FINAL SEDIMENTATION

The mixed liquor, (effluent from the aeration tanks) is detained in the three final tanks where the remaining suspended solids settle to the bottom, are scraped to a sump, and pumped back to the inlet end of the aeration tanks. This returned sludge is split at this point, a certain percentage returning to the aeration tanks and some being wasted to the primary tanks.

CHLORINATION

Effluent from the final tanks flows to the chlorine contact chamber where it is chlorinated for disinfection purposes, detained for approximately 15 minutes then released via a 24 inch outfall sewer to the Lynn River.

DIGESTION

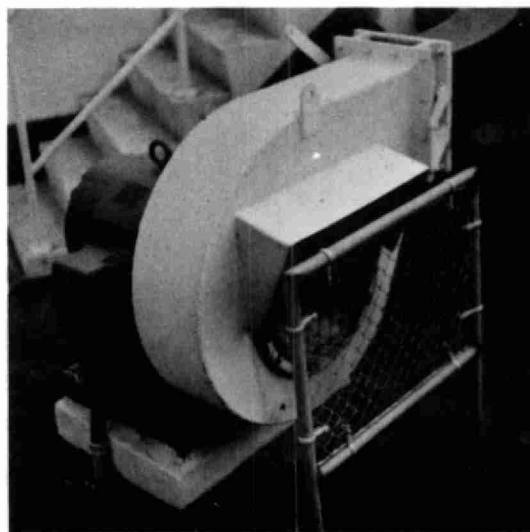
Sludge digestion in this plant is performed in two stages called primary and secondary digestion.

The sludge from the primary tanks is pumped, with excess activated sludge, to the primary digester. In the absence of air, and in a regulated temperature of 90 degrees Fahrenheit, the decomposing or digestion process begins. Constant agitation within the tank ensures overall treatment.

The raw sludge is broken down by anaerobic bacterial action and, when thoroughly digested, is a thick, black odourless liquid.

The secondary digester receives the digested material from the primary and completes the process. The secondary digester is not agitated, but is allowed to be quiescent. The supernatant is decanted and returned to the treatment process.

Sludge gas (principally methane), formed during the process, is used as a fuel for the heat exchangers and boiler, supplying heat to the digesters and buildings. The standby fuel is oil.



AIR FAN

PROJECT COSTS

LONG TERM DEBT <u>TO OWRC:</u>	\$245,536.00
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The total cost to the municipality during 1964 as follows:

Net Operating	\$ 33,517.36
Debt Retirement	5,651.00
Reserve	5,338.00
Interest Charged	14,727.33
TOTAL	\$ 59,233.69

RESERVE ACCOUNT

Balance at January 1, 1964	\$ 2,224.00
Deposited by municipality	5,338.00
Interest Earned	233.48

\$ 7,795.48

Less Expenditures

-

Balance at December 1, 1964	\$ 7,795.48
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DEBT OUTSTANDING <u>TO OWRC:</u>	\$237,272.20
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MONTHLY COSTS

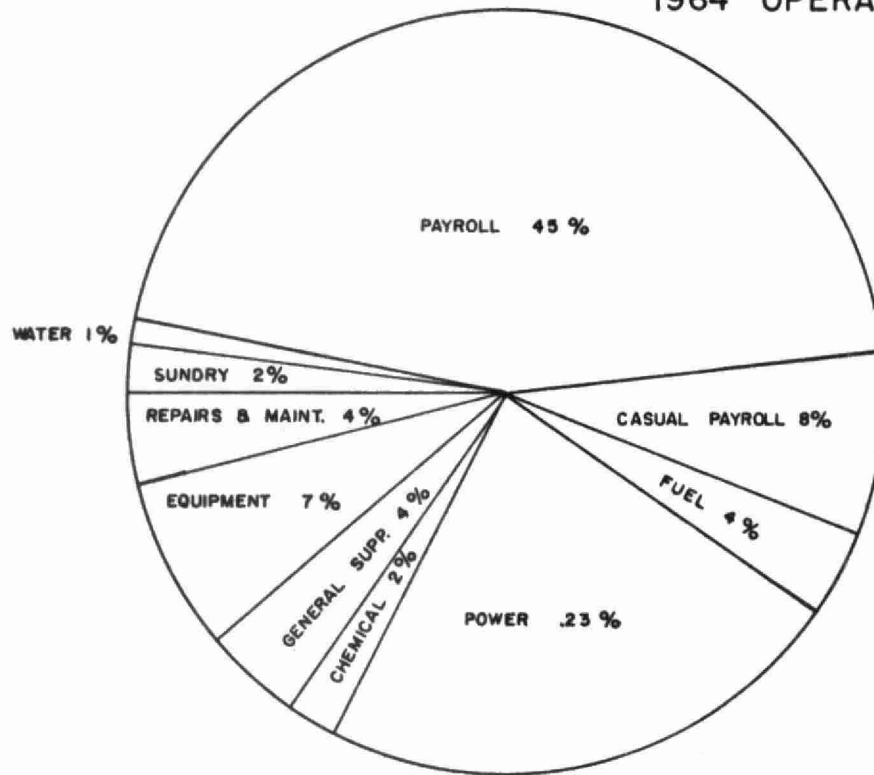
MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY	WATER
JAN	2120.76	1251.60		143.19	602.80		51.75	47.80		8.60	15.02
FEB	2233.98	1281.80		119.67	465.69		118.94	147.57	35.70	53.23	11.38
MARCH	2126.45	1317.01		481.59			131.70	101.78	55.83	38.54	
APRIL	2713.30	1321.19			1002.37		175.67	26.38	102.36	19.29	66.04
MAY	2676.25	1814.41	190.22	419.27		13.49	81.18	17.25	41.64	98.79	
JUNE	3730.43	1199.08	243.12		1020.19	688.83	82.46	15.28	440.24	41.23	
JULY	2801.24	1126.32	417.54		799.76		56.23	231.77	53.91	29.19	86.52
AUG	2617.16	1036.48	374.79		713.65	100.00	90.16	41.89	168.45	46.84	44.90
SEPT	3634.20	1094.42	462.00	14.36	912.61	677.66	267.09		103.78	68.45	33.83
OCT	1825.40	1052.80	401.22				139.64	162.00	17.95	51.79	
NOV	3254.43	1052.80	277.11		1423.19		112.11	121.82	173.29	11.24	82.87
DEC	3783.76	1665.58	376.56	12.69	791.55	(665.00)	152.26	1300.90	34.89	69.43	44.90
TOTAL	33517.36	15213.49	2742.56	1190.77	7731.81	814.98	1459.19	2214.44	1228.04	536.62	385.46

BRACKETS INDICATE CREDIT

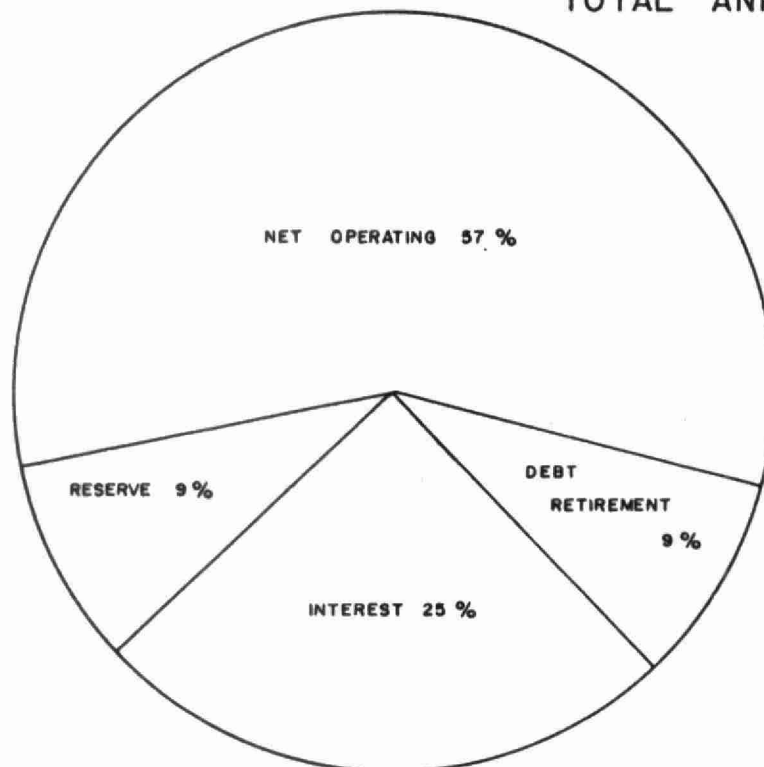
YEARLY COSTS

YEAR	M.G. TREATED	TOTAL COST	COST PER FAMILY PER YEAR	COST PER MILLION GALLONS	COST PER L.B. OF BOD REMOVED
1964	485,269	33517.36	13.26	69.06	2 CENTS

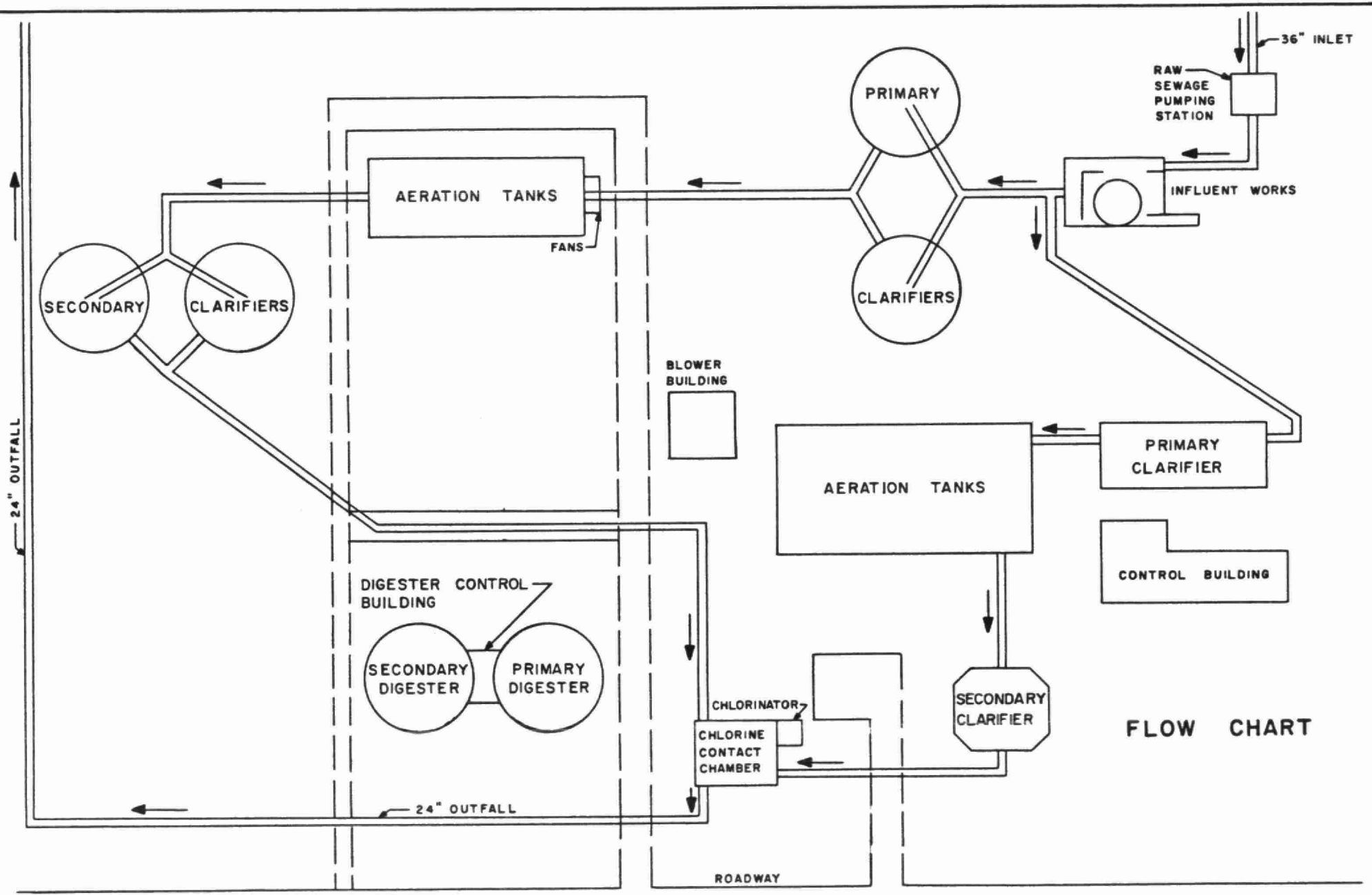
1964 OPERATING COSTS



TOTAL ANNUAL COST



**Technical
Section**



FLOW CHART

Design—Data

RAW SEWAGE PUMPS

- No. 1 - Fairbanks Morse - 1200 gpm capacity @ 35' TDH powered by a 15 hp Fairbanks motor.
- No. 2 - Smart-Turner - 500 gpm capacity @ 35' TDH powered by a 10 hp Reliance motor.
- No. 3 - Worthington - 2000 gpm capacity @ 50' TDH powered by a 40 hp. Associated Electrical motor.
- No. 4 - Worthington- 2000 gpm capacity @ 50' TDH powered by a 40 hp. Associated Electrical motor.

INFLUENT WORKS

Grit Removal

Dorr-Oliver-Long "Detritor" with dimensions 14' x 14' x 1.5'. The volume of 1850 gallons provides a 1.33 minute detention at total design flow of 2.0 mgd.

Comminution

Chicago Pump Company Limited bar-minutor Model C, width 24".

TREATMENT PLANT NUMBER TWO (1.4 MGD Extension)

Type of Plant - Activated sludge.

Design Population - 10,800 persons.

Per Capita Flow - 130 gallons per day.

Design Plant Flow - 1.4 mgd.

Five Day BOD

Raw Sewage	-	220 ppm
Removal	-	90%

Suspended Solids

Raw Sewage	-	230 ppm
Removal	-	90%

PRIMARY SETTLING TANKS

Two Dorr-Oliver-Long primary clarifiers with dimensions 45' in diameter x 10' SWD. The combined volume of 198,000 gallons provides a 3.4 hour detention at design flow of 1.4 mgd.

Raw sludge pumps (serve plant #1 as well)

- No. 1 - Marlow 87 gpm capacity @ 50' TDH powered by a 3 hp motor.
- No. 2 - Marlow 87 gpm capacity @ 50' TDH powered by a 3 hp motor.
- No. 3 - Marlow 87 gpm capacity @ 50' TDH powered by a 3 hp General Electric motor.

AERATION TANKS

Two single pass rectangular tanks measuring 92' x 25' x 12.5'. The combined volume of 382,000 gallons provides 6.65 hour detention at design flow.

AIR SUPPLY

Low pressure air for the 'Inka' diffuser system is supplied through a large concrete conduit by two James Howden Company fans. Each fan is capable of supplying 5508 cfm at a static pressure of 35" W.C. and is powered by a 50 hp. General Electric motor.

SECONDARY SETTLING TANKS

Two Dorr-Oliver-Long secondary clarifiers with dimensions 45' in diameter x 10' SWD. The combined volume of 198,000 gallons provides a 3.4 hour detention at design flow.

RETURN SLUDGE PUMPS

No. 1 - Weinman - 410 gpm capacity @ 23' TDH powered by a 5 hp US motor with vari-drive.

No. 2 - Weinman - 410 gpm capacity @ 23' TDH powered by a 5 hp US motor with vari-drive.

CHLORINATION

One rectangular tank measuring 20' x 15' x 16.5'. The volume of 12,650 gallons provides a thirteen minute detention time at design flow.

TREATMENT PLANT NUMBER ONE

(0.6 MGD original)

Type of Plant - Activated sludge.

Design Population - 4600 persons.

Per Capita Flow - 130 gallons per day.

Design Plant Flow - 600,000 gallons per day.

Five Day BOD

Raw Sewage - 220 ppm

Removal - 90%

Suspended Solids

Raw Sewage - 230 ppm

Removal - 90%

PRIMARY SETTLING TANKS

One rectangular tank measuring 50' x 20' x 8'. The volume of 50,000 gallons provides a detention time of 4.31 hours at the design flow of 0.6 mgd. Sludge and scum are removed by a 20' travelling Hardinge mechanism.

RAW SLUDGE HANDLING

These facilities are incorporate in plant number two.

AERATION TANKS

Eight rectangular tanks measuring 12 x 50' x 8'. The combined volume of 240,000 gallons provides a detention time of 7.68 hours at design flow with 25% return sludge.

AIR SUPPLY

Two Roots-Connersville RCR Blowers, each having a capacity of 1200 cfm @ 6.5 psig. Each is driven by a 50 hp. Reliance motor.

SECONDARY SETTLING TANK

One hexagonal tank, approximately 46' in diameter and 9.5' SWD. The volume of 98,600 gallons provides a detention of 3.16 hours at design flow with 25% return sludge.

RETURN SLUDGE PUMPS

- No. 1 - Fairbanks Morse - 160 gpm capacity @ 56' TDH powered by a 5 hp Fairbanks motor.
- No. 2 - Fairbanks Morse - 160 gpm capacity @ 56' TDH powered by a 5 hp Fairbanks motor.
- No. 3 - Sludge Unloading Pump-Marlow, 80 gpm capacity @ 125' TDH, powered by a 5 hp motor.

CHLORINATION

One rectangular tank measuring 18' x 14.25' x 6'. The volume of 6800 gallons provides a detention time of 16.4 minute at design flow.

DIGESTION

Digesters

One 50' diameter x 20' SWD primary digester equipped with a Pacific Flush tank floating cover and a 110 cfm Pearth gas recirculation unit.

One 50' diameter x 20' SWD secondary digester equipped with a Pacific Flush tank spiral guided Gas Holding Roof, and a 4" bore supernatant draw-off pipe.

The total digester volume of 86,500 cu. ft. gives a per capita allowance of 5.6 cu. ft. and a loading of 1.43 lbs. solids per cu. ft. per month.

Heat Exchanger and Boiler

One Pacific Flush Tank Company spiral heat exchanger with a transfer area of 52 sq. ft. Heat is supplied by a dual-fueled Ray Boiler.

PUMPS

- No. 1 - Sludge Recirculating Pump-Fairbanks-Morse 150 gpm capacity @ 40' TDH, powered by a 5 hp Westinghouse motor.
- No. 2 - Sludge Transfer Pump - Marlow, 80 gpm capacity @ 125' TDH, powered by a 5 hp motor.

CHLORINATOR

One Wallace and Tiernan Series A-421, Visible Vacuum Chlorinator with a capacity of 400 lbs. per day.

FLOW MEASUREMENT

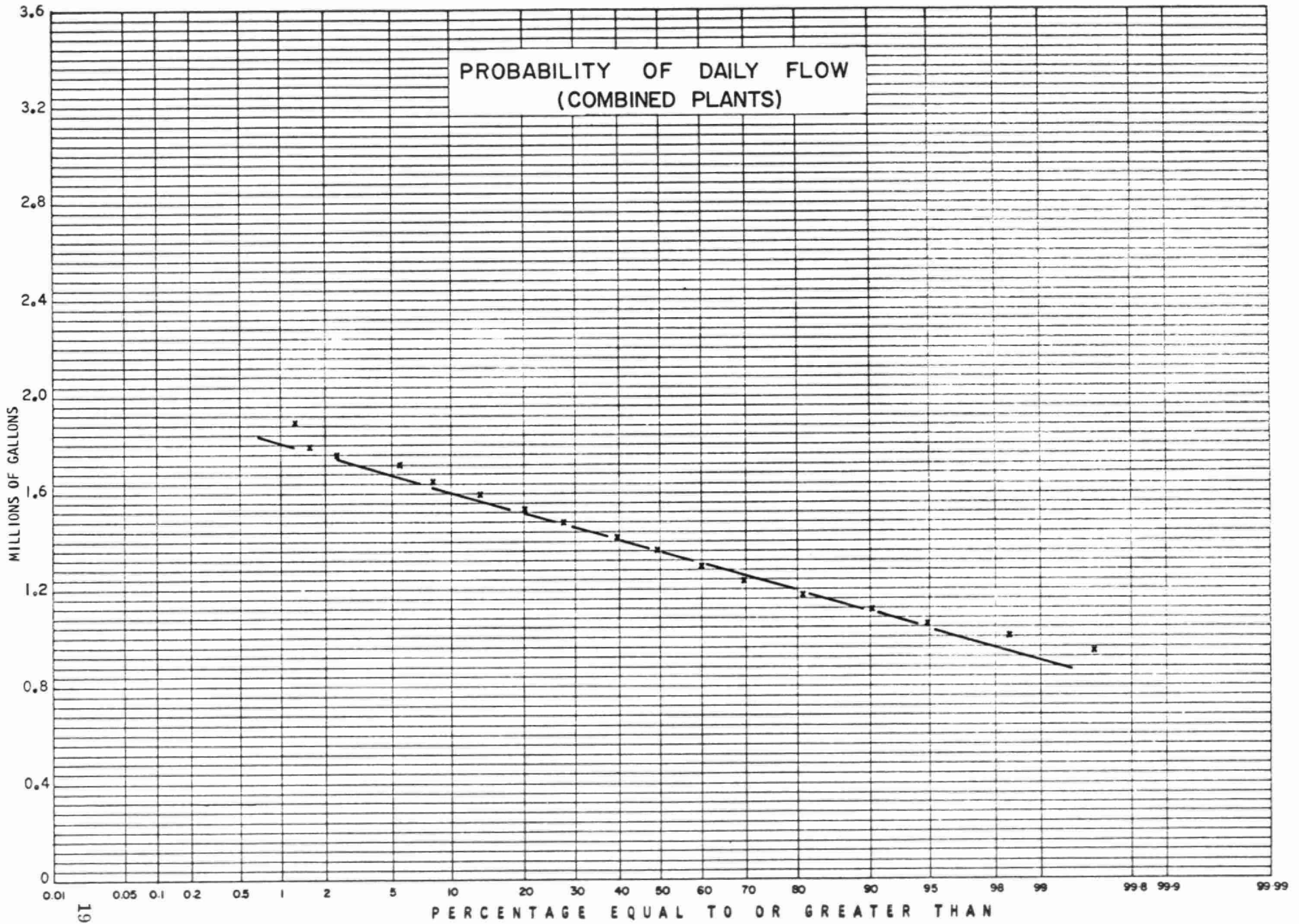
Flow is measured by a BIF flow meter, which records, indicates and integrates the flow passing through a 12" Parshall flume located at the influent works,

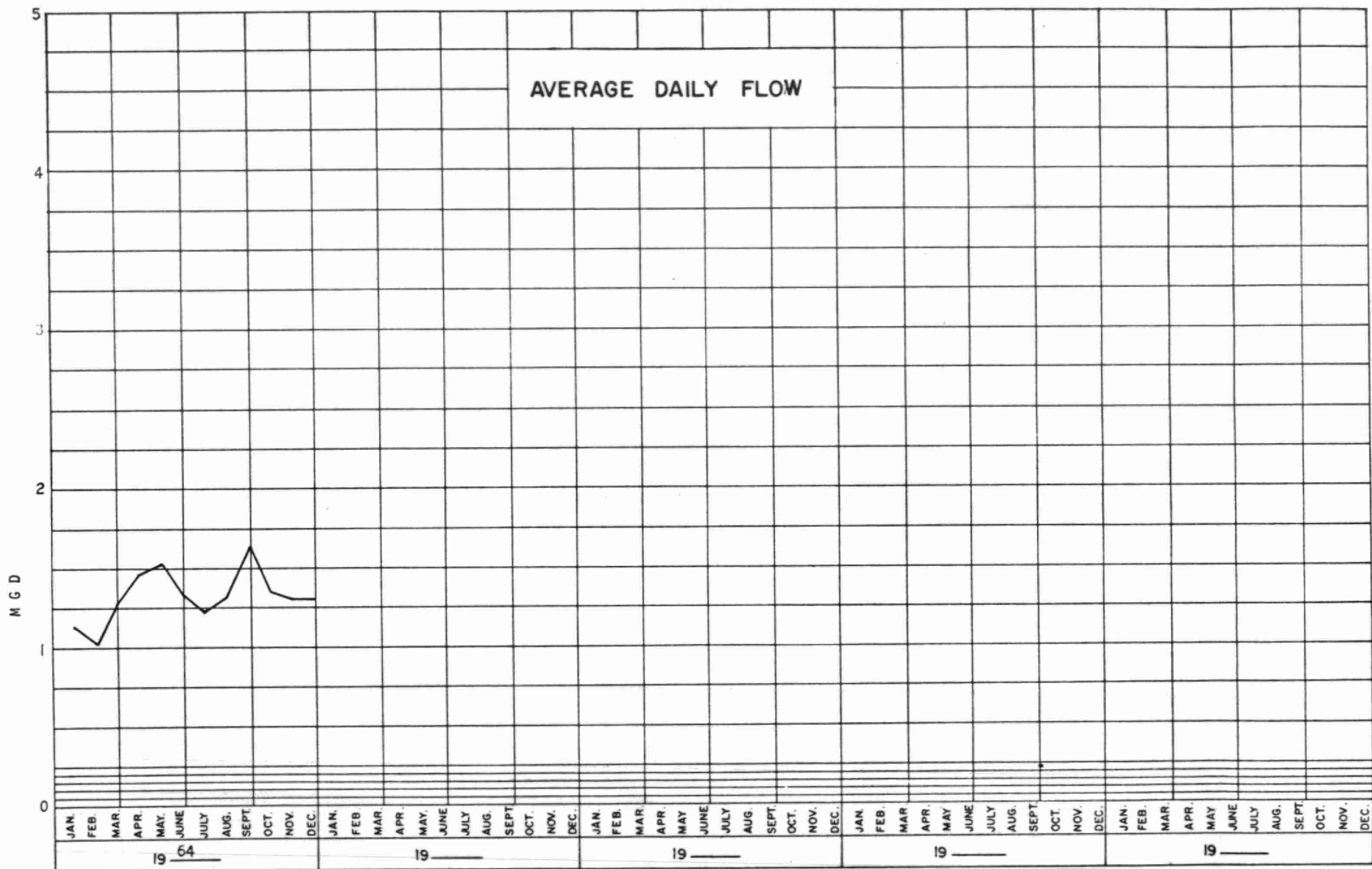
Process Data

As will be noted from the accompanying charts and graphs the average daily flow, during 1964, was 1.326 MG. This represents a load factor of 0.66; that is to say, on an average daily flow basis, the plant as a whole is operating at 66% of hydraulic capacity. On an individual basis, the load factor on plant #2 is kept in the range of 0.75 to 0.85 and plant #1 is used to take up the slack.

During the last year, 485.269 million gallons of raw sewage composed of both domestic and industrial wastes received complete treatment.

The maximum daily or 24 hour flow experienced during the year was 1.924 MG and occurred in the month of September, whereas the minimum daily flow of 0.824 MG occurred in the month of January.

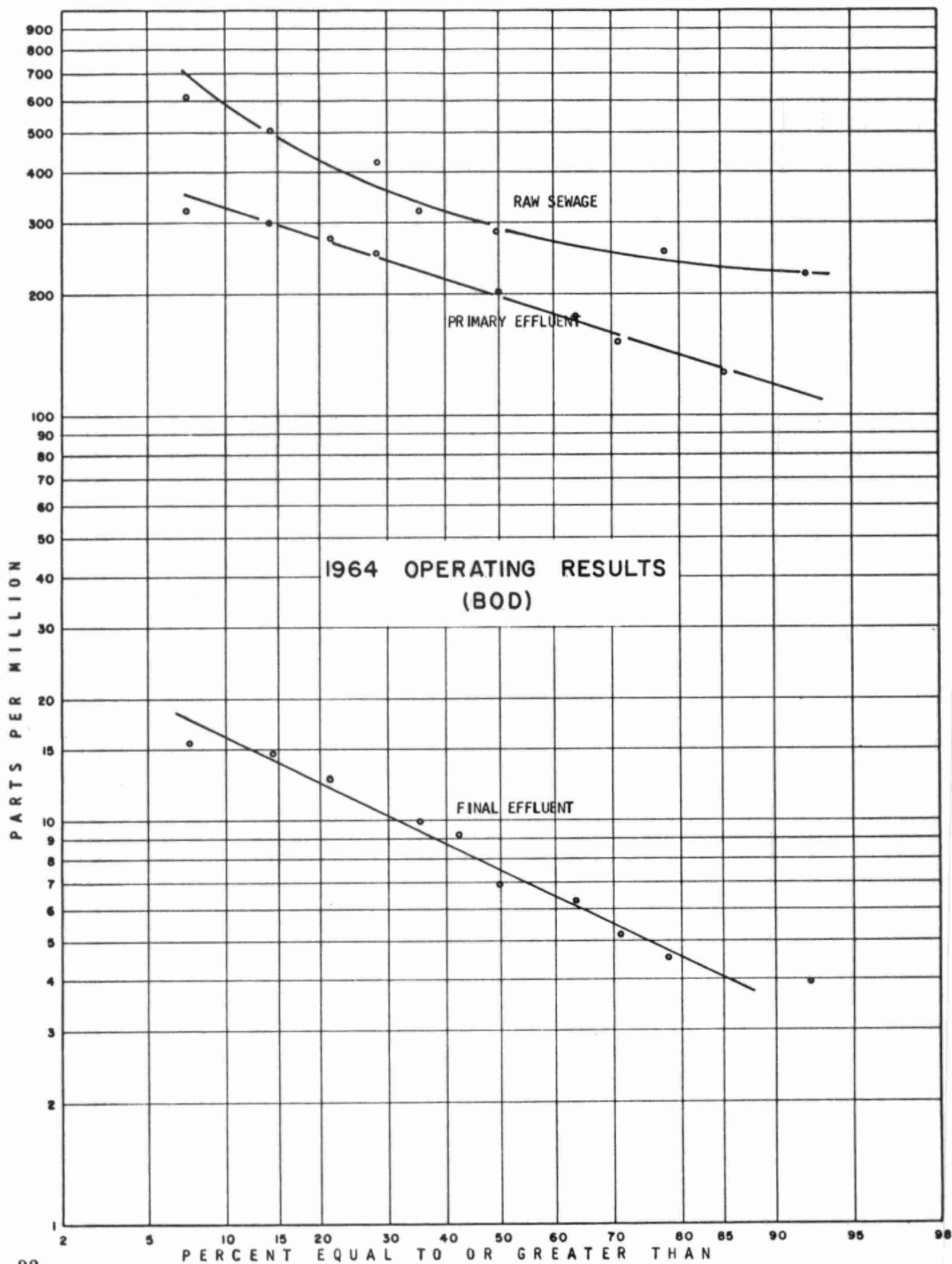


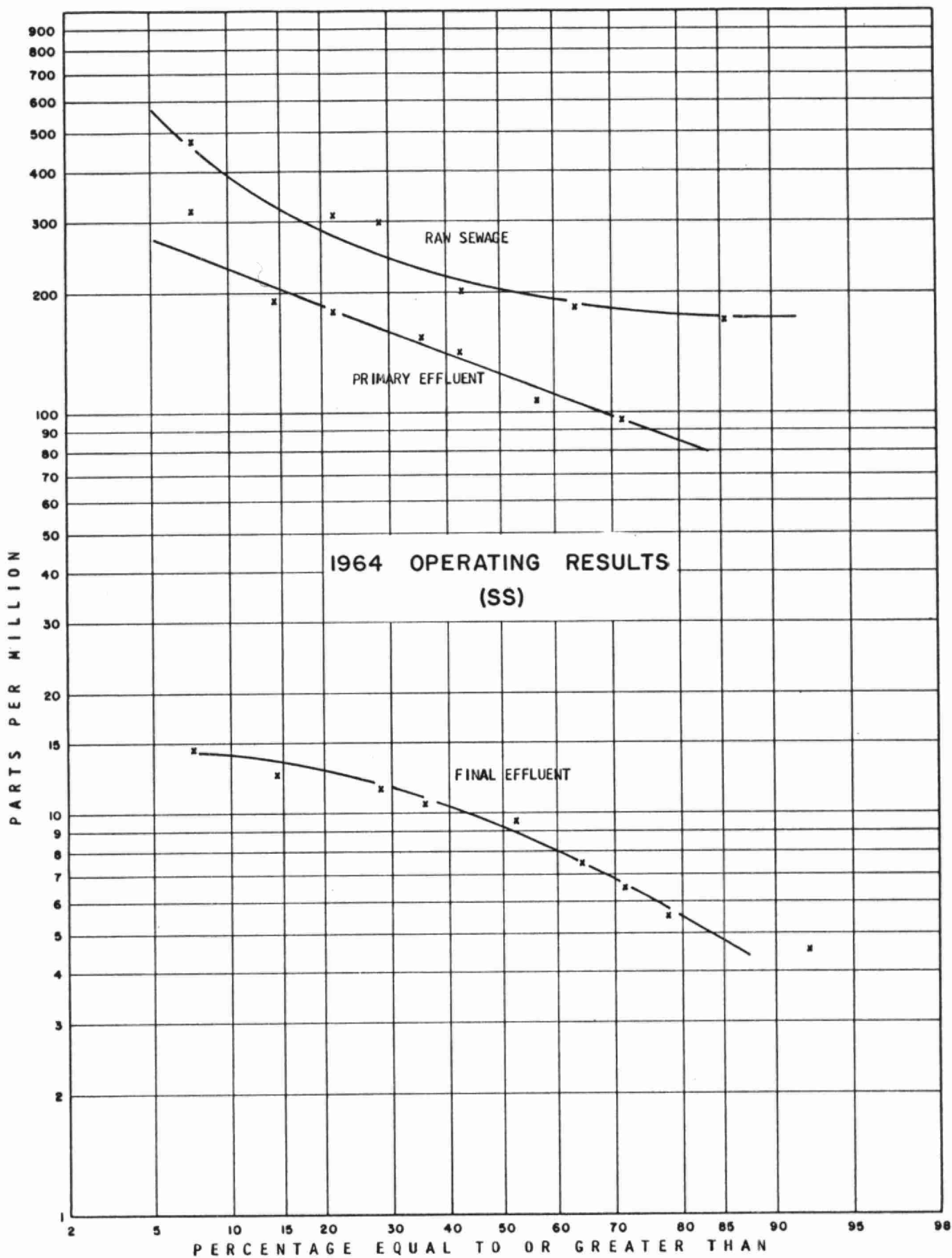


FLOW DATA

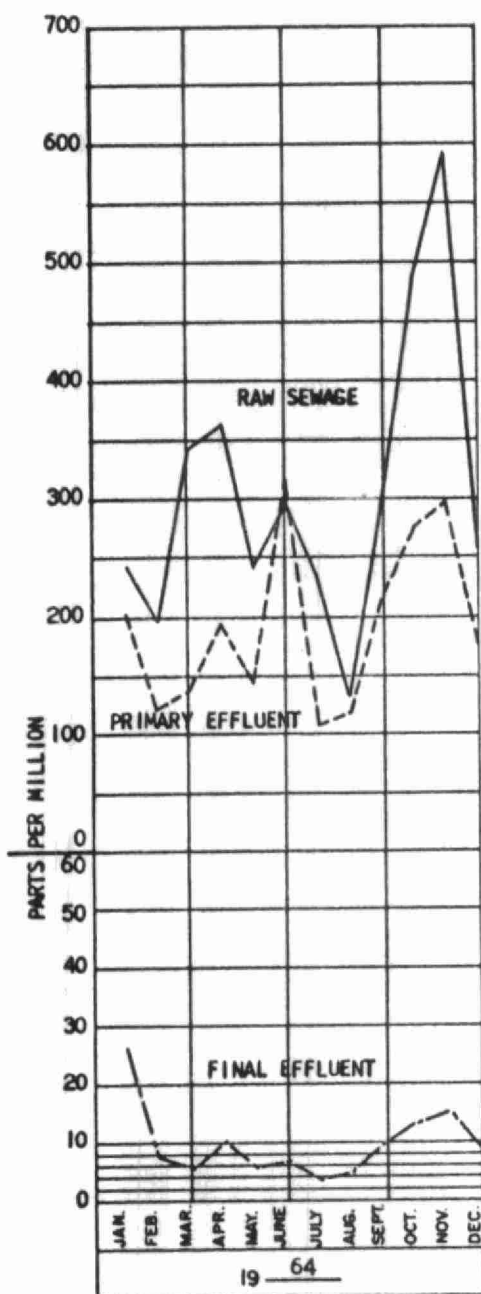
Month	Total flow M. G.	Max. Day for month M. G.	Min. Day For month M. G.	Avg. Daily for month M. G.
January	35,364	1.435	.858	1.141
February	29,783	1.162	.917	1.027
March	39,804	1.730	.999	1.284
April	44,490	1.872	1.220	1.483
May	47,239	1.894	1.239	1.524
June	40,392	1.524	1.147	1.346
July	38,072	1.475	.993	1.228
August	40,599	1.871	1.032	1.310
September	48,288	1.924	1.280	1.609
October	41,856	1.617	.866	1.351
November	39,072	1.481	1.058	1.302
December	40,310	1.620	1.074	1.300
Total	485,269			
Average	40,439			1.326

Year	Total Flow M. G.	Max. Daily M. G.	Min. Daily M. G.	Avg. Daily M. G.
1964	485,269	1.924	.858	1.326

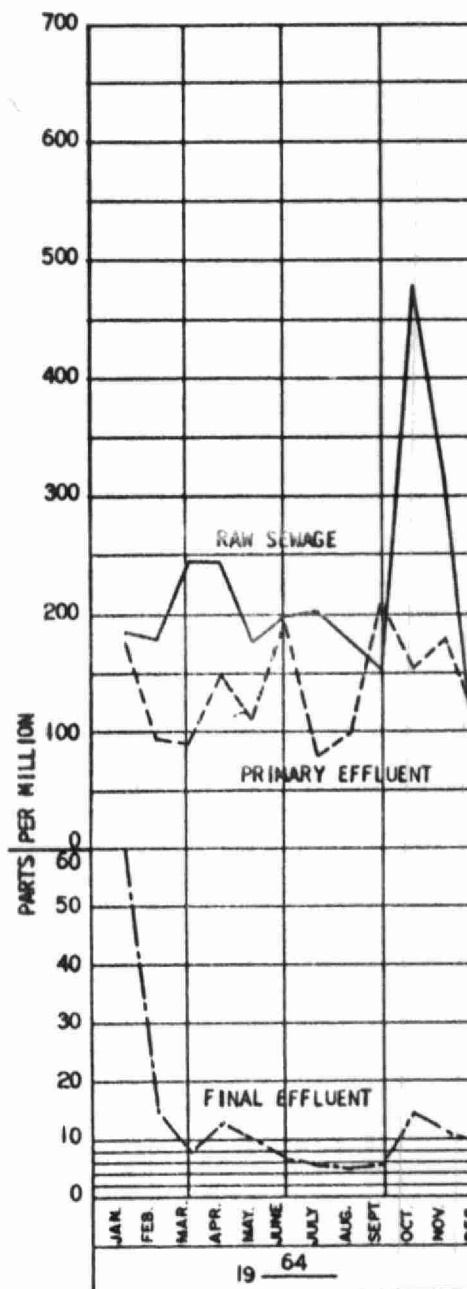




MONTHLY VARIATIONS



Biochemical Oxygen Demand



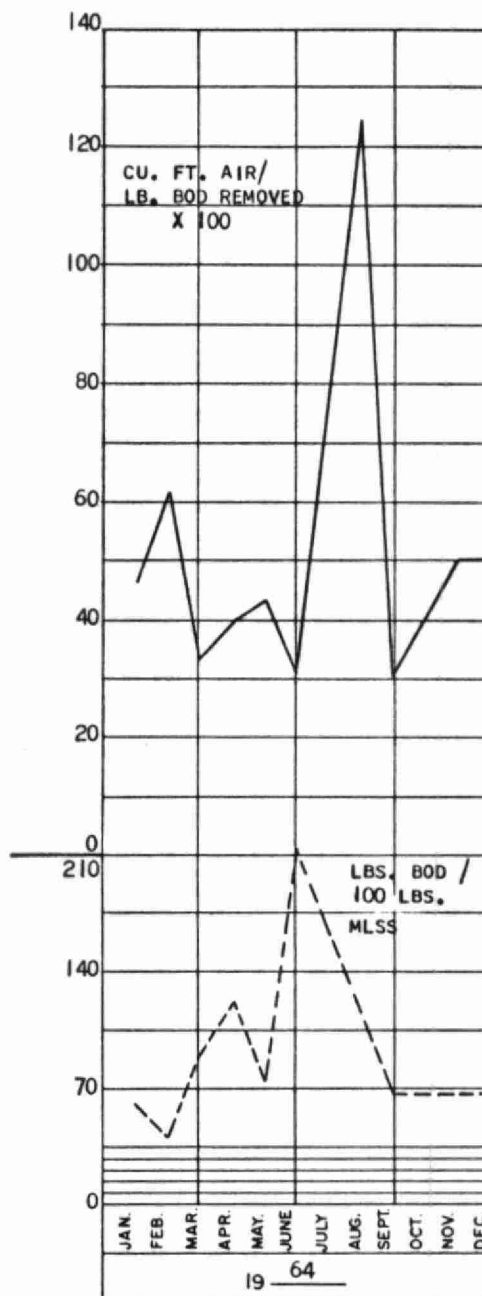
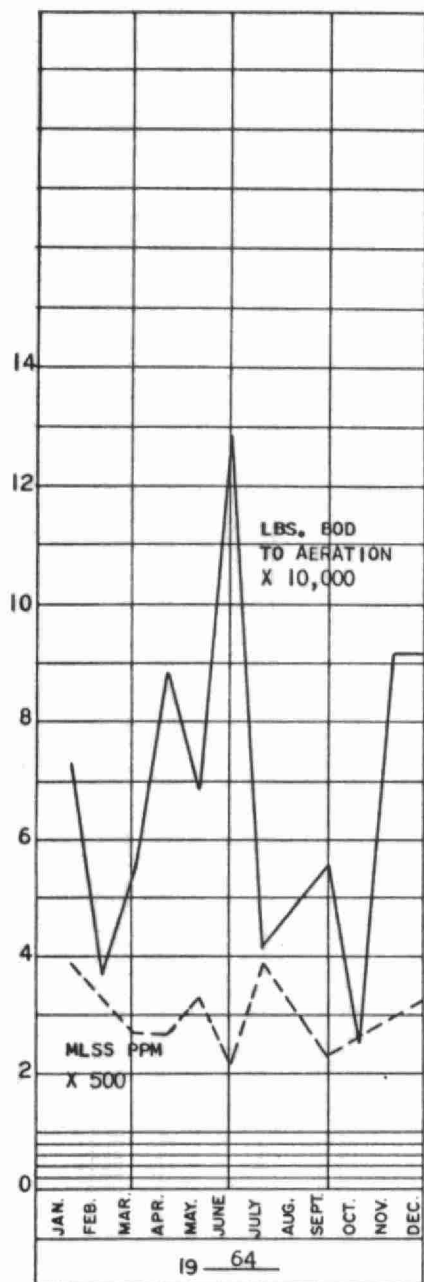
Suspended Solids

GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT P.P.M.	EFFLUENT P.P.M.	% REDUCTION	TONS REMOVED	INFLUENT P.P.M.	EFFLUENT P.P.M.	% REDUCTION	TONS REMOVED	
JAN.	245	26	89.5	38.7	186	60	67.5	22.3	89
FEB.	200	6.8	96.5	28.8	179	14	92	24.6	41
MAR.	348	5.2	98.5	68.2	244	7.5	97	47.1	68
APR.	358	10	97	77.4	244	12	95	51.6	107
MAY	245	5.7	97.5	56.5	179	9.5	94.5	40	88
JUNE	300	6.4	98	59.3	198	6	97	38.8	107
JULY	235	3.4	98.5	44.1	202	5	97.5	37.5	131
AUG.	135	4.2	97.0	26.6	178	4	97.5	35.3	88
SEPT.	302	10	96.5	70.5	153	5	96.5	35.7	50
OCT.	490	13	97.5	99.8	482	14	97.0	97.9	50
NOV.	600	15	97.5	114.3	319	11	96.5	60.2	134
DEC.	260	9	96.5	50.6	183	9	95.0	35.1	77
TOTAL	-	-	-	730.3	-	-	-	524.1	1030
AVG.	311	10	97.0	60.9	229	13	94.5	43.7	86

COMMENTS

An average organic loading of 311 ppm BOD and 229 ppm SS was experienced in the raw sewage in 1964. The average BOD in the effluent of 10 ppm was below the OWRC standard of 15 ppm, as was the average effluent SS of 13 ppm. It should be noted that the average BOD loading is 41% greater than the design BOD loading, while the average SS loading is only 0.4% less than the design SS loading. The efficiencies of removal of 97.0% and 94.5% for BOD and SS respectively are very satisfactory. The grit removed per million gallons of sewage is 2.1 cu. ft. and indicates the existence of combined sewers in the collection system.



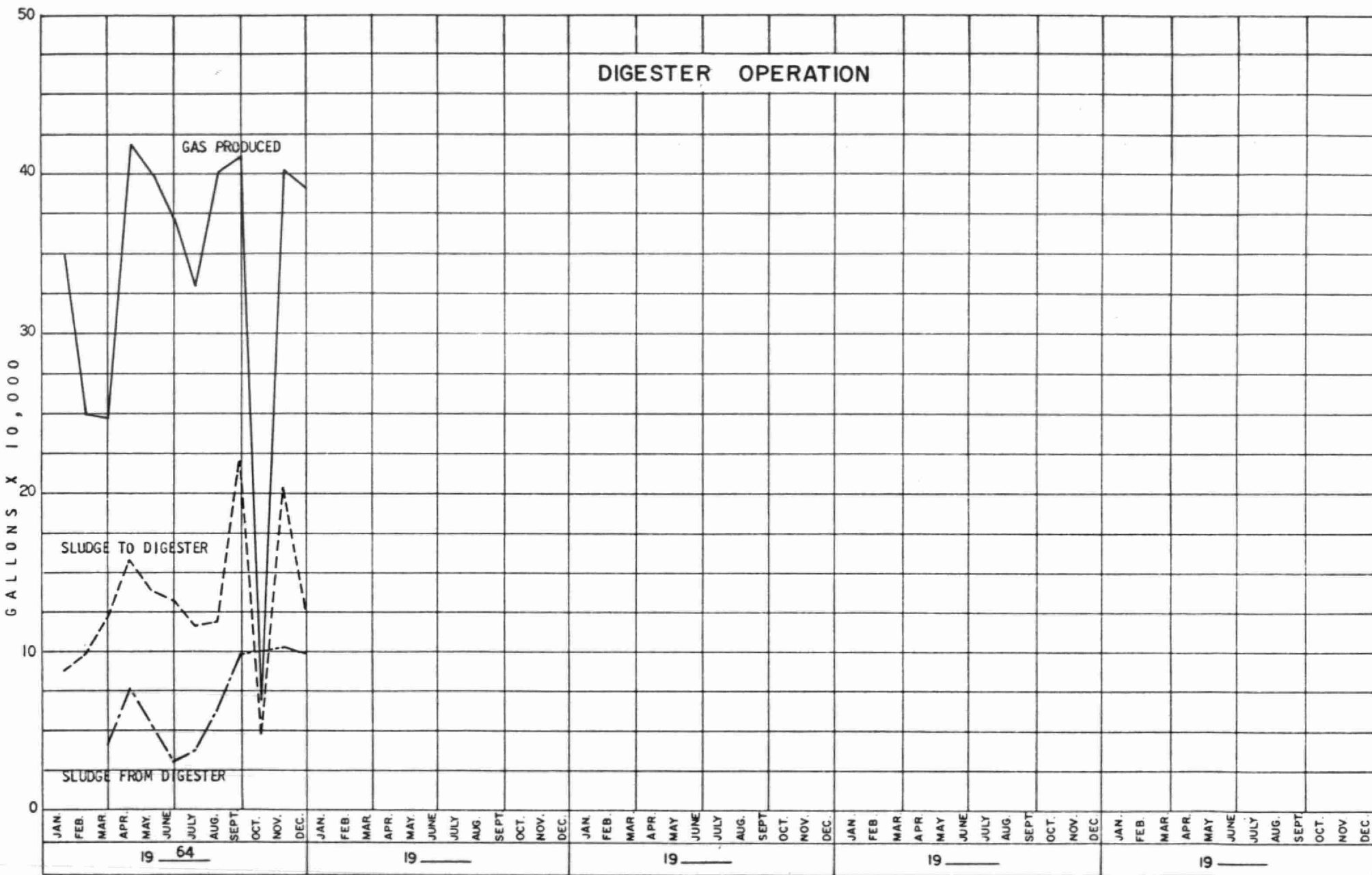
AERATION TANK PERFORMANCE

AERATION SECTION

MONTH	PRIM. EFFL. B.O.D. PPM.	ML.SS. PPM.	LBS BOD. PER 100 LBS. M. L. S. S.	CUBIC FEET AIR PER LB. BOD. REMOVED
JANUARY	205	1920	29	4828
FEBRUARY	124	1628	20	6181
MARCH	140	1340	45	3307
APRIL	198	1334	58	3940
MAY	148	1648	36	5288
JUNE	320	1070	106	3108
JULY	110	1922	-	-
AUGUST	120	-	-	12529
SEPTEMBER	220	2199	33	3005
OCTOBER	280	-	-	-
NOVEMBER	300	-	-	5012
DECEMBER	180	1618	-	-
TOTAL	-	-	-	-
AVERAGE	195	1631	47	5244

COMMENTS

The aeration data is for plant #2 only as plant #1 was used only approximately 6 months last year and on an intermittent basis. The data indicates that the aeration section of plant #2 was loaded quite heavily. The average pounds of BOD per 100 pounds MLSS ratio was 47 whereas the normal ratio for a conventional plant of this size is between 20 and 30. It has been found from our experience at Simcoe that the "Inka" aeration system, a system which can be termed as not conventional, operates more efficiently when the pounds BOD per 100 pounds MLSS ratio is higher than normal. The cu. ft. of air used per pound of BOD removed is also higher than in conventional plants, however, it must be remembered that the "Inka" system utilizes low pressure air and that, in this case, the usage is quite normal.



DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	
JAN.	13.96	-	-	-	-	-	345.20
FEB.	15.72	-	-	-	-	-	249.09
MAR.	19.33	-	-	6.41	-	-	245.23
APR.	25.31	-	-	12.18	-	-	419.26
MAY	22.26	-	-	-	-	-	400.77
JUNE	20.46	-	-	5.13	-	-	374.68
JULY	18.65	-	-	6.09	-	-	330.10
AUG.	30.71	-	-	10.10	-	-	400.83
SEPT.	35.47	-	-	15.86	-	-	411.85
OCT.	34.10	-	-	16.26	-	-	407.30
NOV.	32.74	-	-	16.67	-	-	402.74
DEC.	20.75	-	-	16.03	-	-	393.18
TOTAL	289.46	-	-	104.73	-	-	4380.23
AVG.	24.12	-	-	8.73	-	-	365.02

COMMENTS

A total of 289,460 cu. ft. of raw sludge was pumped to the digesters in 1964 and 104,730 cu. ft. of digested sludge was drawn off to the drying beds. This indicates a total volume reduction, through supernation, of 64%. This reduction is considered as excellent. A total of 4,380,230 cu. ft. of gas was produced and was used to supplement the fuel supply at the plant. The total gas produced is equivalent to a production of 1.22 cu. ft. per capita per day, whereas the normally accepted value is 0.9 cu. ft. per capita per day.

LABORATORY LIBRARY



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RECOMMENDATIONS

Generally the plant operated efficiently in 1964 producing an effluent which met the OWRC standards. Continuous attempts will be made to improve the effluent in 1965.

Most of the equipment associated with Plant #1 has been either rebuilt or checked extensively and is presently in good condition with the exception of the blowers which are only in fair condition. Very minor regrading around the plant is planned for 1965 to facilitate storm water runoff, a few walkways are to be relocated to more convenient locations. A new water service is also to be connected in 1965, which will eliminate the wet area adjacent to the raw sewage pumping station.



